

Sub E6
cont.

dimethoxysilane and combinations thereof, based on 100 parts of the resin.

24. (AMENDED) The method of claim 13, wherein the filler is selected from the group consisting of silica, Aluminum Oxide, 92% Alumina, 96% Alumina, Aluminum Nitride, Silicon Nitride, Silicon Carbide, Beryllium Oxide, Boron Nitride and Diamond powder.

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(NEW) The method of claim 1, wherein the cured composition exhibits a coefficient of linear thermal expansion of about 26 ppm/ °C to less than about 39 ppm/ °C and a glass transition temperature between 100 °C and 160 °C.

REMARKS

Claims 25 and 26 are canceled. Claim 13 and 23 are amended. Claim 27 is new. Claims 13-24 and 27 are pending.

The Examiner stated "[T]he Japanese references that are lined through have not been considered because no Abstract nor translation has been provided." See the Office Action mailed April 24, 2002, hereinafter the "Office Action." Applicants have accordingly submitted translations for the following Japanese patents:

Document Number	Date	Country
4-91118	3/92	Japan
2-68	01/90	Japan
3-188186	08/91	Japan

Applicants respectfully submit that they have complied with 37 CFR 1.98(a)(2) which requires a

legible copy of each U.S. and Foreign Patent.

The Examiner rejected Claims 13-26 under the doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. 6,129,955, in view of Christie *et al.* (5,250,848). Applicants respectfully submit the Examiner's obviousness-type double patenting rejection of Claims 13-26 fails because Christie *et al.* (5,250,848), on which the Examiner relied to show obviousness of Claims 13-26, do not teach or suggest *inter alia* a method for **photocuring** a resin precursor, wherein the resin precursor substantially consists of a cyanate ester monomer, a cyanate ester prepolymer, or a mixture of the monomer and prepolymer; ... , as in Applicants Claims 13-24 and new Claim 27. Applicants respectfully submit that Christie *et al.* only teach or suggest curing the compositions "at temperatures of less than about 150 °C and preferably about 130 °C in about 2 to about 6 hours and preferably about 4 hours." See Christie *et al.*, column 6, lines 46-50.

The Examiner objected to the recitation in Claim 23 "based on 100 parts of the cyanate ester," under 35 U.S.C. 132, as allegedly containing new matter.

The Examiner rejected Claims 13-22 under 35 U.S.C. 103(a) as being allegedly unpatentable over Christie *et al.* (5,250,848) in view of Gelorme *et al.* (5,464,726).

The Examiner rejected Claims 13-22 and 24-26 under 35 U.S.C. 103(a) as being allegedly unpatentable over Christie *et al.* (5,250,848) in view of Gaku *et al.* (4,554,346).

The Examiner rejected Claims 13-16 and 18-22 under 35 U.S.C. 103(a) as being allegedly unpatentable over Christie *et al.* (5,250,848) in view of McCormick *et al.* (5,7444,557).

The Examiner rejected Claim 23 under 35 U.S.C. 103(a) as being allegedly unpatentable over Christie *et al.* (5,250,848) in view each of Gelorme *et al.*, Gaku *et al.* and McCormick *et al.*,

as applied to Claim 13, and further in view of Papathomas *et al.* (5,194,930).

Applicants respectfully traverse the 35 U.S.C. 103(a) rejections in the following discussion.

35 U.S.C. 132

The Examiner objected to the recitation in Claim 23 "based on 100 parts of the cyanate ester," under 35 U.S.C. 132, as allegedly containing new matter. The Examiner states "the specification sets forth 'based on 100 parts of resin.'" Accordingly, Applicants have amended Claim 23 in accordance with 'based on 100 parts of resin.'" In light of the foregoing, Applicants respectfully submit the recitation in Claim 23 is not new matter under 35 U.S.C. 132.

35 U.S.C. 103(a)

The Examiner rejected Claims 13-22 under 35 U.S.C. 103(a) as being allegedly unpatentable over Christie *et al.* (5,250,848) in view of Gelorme *et al.* (5,464,726). Applicants contend that Gelorme *et al.* (5,464,726) cannot be used as prior art in rejecting claims of the present patent application, because "[e]ffective November 29, 1999, subject matter which was prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(e) is now disqualified as prior art against the claimed invention if that subject matter and the claimed invention 'were, at the time the invention was made, owned by the same person or subject to assignment by the same person.'" MPEP 706.02(1)(1).

First, the present patent was filed on January 26, 2001 which is after November 29, 1999.

Second, Gelorme *et al.* (5,464,726) is being considered by the Examiner as prior art under

former 35 U.S.C. 103 via 35 U.S.C. 102(e) because the filing date of *Gelorme et al.* is earlier than the effective filing date of the present application. See MPEP 706.02(a) II. If the issue date of *Gelorme et al.* is more than one year earlier than the effective date of present application, the statutory bar of 102(b) applies. See MPEP 706.02(a) I. If the issue date of *Gelorme et al.* is earlier than the effective filing date of the present application, but by less than a year, and is not the applicant's own work, 102(a) applies. See MPEP 706.02(a) III. The present application has an effective filing date of October 26, 1995, based on priority with patent application serial number 08/548,893.

35 U.S.C. 102(b) is not satisfied because the issue date of *Gelorme et al.* is November 7, 1995, which is later than the effective filing date of the present application, October 26, 1995. 35 U.S.C. 102(a) is not met because the issue date of *Gelorme et al.* is after the effective filing date of the present invention. The filing date of *Gelorme et al.* is November 25, 1994, which is before the effective filing date of the present application, thus meeting 102(e).

Third, both the subject matter of *Gelorme et al.* (5,464,726) and the claimed invention of the present patent application were, at the time the invention was made, owned by International Business Machines Corporation or subject to assignment by International Business Machines Corporation. Accordingly, Applicant respectfully maintains that *Gelorme et al.* (5,464,726) cannot be used as a prior art reference.

Applicants respectfully submit that although the present application is a continuation-in-part of the patent application serial number 08/874,220, which is a divisional application of the patent application serial number 08/548,893, filed October 26, 1995, which is now abandoned, Applicants' Claims 13-24 and new Claim 27 are entitled to the October 26, 1995 priority date,

because they are supported in the specification of the patent application serial number 08/548,893.

In light of the foregoing discussion, Applicants respectfully submit that Claims 13-24 and new Claim 27 are in condition for allowance under 35 U.S.C. 103(a) over Gelorme *et al.* (5,464,726) because 35 U.S.C. 103(c) provides that Gelorme *et al.* cannot be used as prior art under 35 U.S.C. 103.

The Examiner rejected Claims 13-22 and 24-26 under 35 U.S.C. 103(a) as being allegedly unpatentable over Christie *et al.* (5,250,848) in view of Gaku *et al.* (4,554,346). Applicants respectfully traverse the Examiner's rejection of Claims 13-22 and 24-26 under 35 U.S.C. 103(a) because Christie *et al.* (5,250,848) in view of Gaku *et al.* (4,554,346) do not teach or suggest *inter alia* Applicants' claimed invention. Claim 13 is directed to a method for **photocuring** "a resin precursor, wherein the resin precursor **substantially consists of** a cyanate ester monomer, a cyanate ester prepolymer, or a mixture of the monomer and prepolymer;" In contrast, Gaku *et al.* disclose a process for making a curable resin comprising reacting (a) at least one cyanate ester compound "**with (b) at least one compound having hydroxy group(s) and radical-polymerizable unsaturated double bond(s) in its molecule.**" See Gaku *et al.*, column 1, lines 41-50. Gaku *et al.* do not teach or suggest the method of Claim 13 because Gaku *et al.* disclose a process for making a curable resin comprising a different composition than the method of Claim 13 for **photocuring** "a resin precursor, wherein the resin precursor **substantially consists of** a cyanate ester monomer, a cyanate ester prepolymer, or a mixture of the monomer and prepolymer;"

In light of the foregoing discussion, Applicants submit that Claims 13-24 and new Claim

27 are in condition for allowance under 35 U.S.C. 103(a) because Christie *et al.* (5,250,848) in view of Gaku *et al.* (4,554,346) do not teach or suggest Applicants' claimed invention.

The Examiner rejected Claims 13-16 and 18-22 under 35 U.S.C. 103(a) as being allegedly unpatentable over Christie *et al.* (5,250,848) in view of McCormick *et al.* (5,7444,557). Applicants respectfully traverse the Examiner's rejection of Claims 13-16 and 18-22 under 35 U.S.C. 103(a) because Christie *et al.* (5,250,848) in view of McCormick *et al.* (5,7444,557) do not teach or suggest *inter alia* Applicants' claimed invention. Applicants' Claim 13 is directed to a method for **photocuring** a resin precursor, wherein the resin precursor **substantially consists of** a cyanate ester monomer, a cyanate ester prepolymer, or a mixture of the monomer and prepolymer; In contrast, McCormick *et al.* (5,7444,557) is directed to a thermally or photochemically activated polymerizable composition and method comprising "**at least one cyanate monomer ... and at least one free radically polymerizable ethylenically unsaturated monomer.**" See McCormick *et al.*, column 6, lines 29-43. McCormick *et al.* do not teach or suggest the method of Claim 13 because McCormick *et al.* disclose a thermally or photochemically activated polymerizable composition and method comprising a different composition than the method of Claim 13 for **photocuring** "a resin precursor, wherein the resin precursor **substantially consists of** a cyanate ester monomer, a cyanate ester prepolymer, or a mixture of the monomer and prepolymer;"

In light of the foregoing discussion, Applicants respectfully submit that Claims 13-24 and new Claim 27 are in condition for allowance under 35 U.S.C. 103(a) because Christie *et al.* (5,250,848) in view of McCormick *et al.* do not teach or suggest Applicants' claimed invention.

The Examiner rejected Claim 23 under 35 U.S.C. 103(a) as being allegedly unpatentable

over Christie *et al.* (5,250,848) in view each of Gelorme *et al.*, Gaku *et al.* and McCormick *et al.*, as applied to Claim 13, and further in view of Papathomas *et al.* (5,194,930). Applicants address the Examiner's rejection of Claim 23 as allegedly unpatentable over Christie *et al.* in view of Gelorme *et al.* under 35 U.S.C. 103(a), applying 35 U.S.C 103(c) in like manner as Applicant's addressed the Examiner's rejection of Claims 13-22 as allegedly unpatentable over Christie *et al.* in view of Gelorme *et al.* under 35 U.S.C 103(a), *supra*. Applicants address the Examiner's rejection of Claim 23 under 35 U.S.C. 103(a) because Christie *et al.*, in view of each of Gaku *et al.* and McCormick *et al.*, as applied to Claim 13, and further in view of Papathomas *et al.* (5,194,930) do not teach or suggest *inter alia* the method of Claim 13 for **photocuring** a resin precursor, wherein the resin precursor **substantially consists of** a cyanate ester monomer, a cyanate ester prepolymer, or a mixture of the monomer and prepolymer;

In light of the foregoing discussion, Applicants submit that Claims 13-24 and new Claim 27 are in condition for allowance because Christie *et al.*, in view of each of Gaku *et al.* and McCormick *et al.*, as applied to Claim 13, do not teach or suggest Applicants' claimed invention.

CONCLUSION

In summary, based on the preceding arguments, Applicants respectfully submit that all independent claims and dependent claims meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invite the Examiner to contact Applicant's representative at the telephone number listed below.

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APPENDIX (Amended Material)

In the Claims

13. (THRICE AMENDED) A method for encapsulating a solder joint between an integrated circuit chip and a substrate, comprising the steps of:

forming a composition that includes [a cyanate ester] a photoinitiator, [and] a [coefficient of thermal expansion reducing] dispersed filler, and a resin precursor, wherein the resin precursor substantially consists of a cyanate ester monomer, a cyanate ester prepolymer, or a mixture of the monomer and prepolymer;

applying an amount of the composition at a thickness sufficient to cover substantially all of the solder joint; and

photocuring the composition to reinforce the solder joint, wherein photocuring the composition forms a resin in the composition from the precursor.

23. (TWICE AMENDED) The method of claim 13, wherein the composition includes from 1 to 20 parts of surface treating agents selected from the group consisting of vinyltrimethoxysilane, vinyltriethoxysilane, N(2-aminoethyl)3-aminopropylmethyldimethoxysilane, 3-aminopropylethoxysilane, 3-glycidoxypropyltrimethoxysilane, 3-glycidoxypropylmethyl dimethoxysilane and combinations thereof, based on 100 parts of the resin.